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THE

DENTAL Digest

JULY 1946

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VOL. 52 NO. 7

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About Our CONTRIBUTORS

HANS H. REESE, M.D. (University of Kiel, 1917) and JOHN G. FRISCH, D.D.S. (Marquette University, School of Dentistry, 1922) are co-authors of a report on the progress being made in one branch of poliomyelitis research. Doctor Reese, a professor of neurology at the University of Wisconsin, is also co-author of the YEAR-BOOK OF NEUROLOGY, PSYCHIATRY, AND ENDOCRINOLOGY. Doctor Frisch has been a member of the Wisconsin State Fluorine Committee for three years and Chairman of the Dane County Dental Society Fluorine Committee for two years. He is the author of FLUORINE AS AN INHIBITOR OF DENTAL DECAY, *J. Wisconsin D. Soc.* (October) 1944 and A COMPARATIVE STUDY OF THE INFLUENCE OF FLUORIDES ON DENTAL DECAY, *J. Wisconsin D. Soc.* (September) 1945.

EMMONS S. COE, D.D.S. (University of Illinois, College of Dentistry, 1921) is a general practitioner. The information he presents on sharpening dental instruments is of value to all dentists.

WILLIAM I. OGUS, D.D.S. (George Washington University, 1917) in this issue concludes a series of four articles on electrosurgical techniques in dentistry. He illustrates the use of the electric knife in the correction of alveolar ridges.

SIDNEY S. JAFFE, D.D.S. (Georgetown University, School of Dentistry, 1905) is engaged in the practice of denture prosthesis. He has written for the DIGEST previously and is the author of two chapters in Nichols' PROSTHETIC DENTISTRY. The current contribution describes his latest technique for full denture construction. It utilizes the plain line articulator and is of special interest in being less time-consuming than other techniques.

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The Carious Tooth as a Portal of Entry for Poliomyelitis: A Progress Report

HANS H. REESE, M.D. and JOHN G. FRISCH, D.D.S., Madison, Wisconsin

A professor of neurology at the University of Wisconsin and a practicing dentist collaborate here in a study of the role of dental caries in poliomyelitis. They supplement the valuable studies of other investigators with further important evidence that the carious tooth is a possible portal of entry for the poliomyelitis virus.

To support their theory, Doctors Reese and Frisch present statistical data on the comparative incidence of poliomyelitis in fluoride and non-fluoride communities.

We are grateful to be able to offer this timely report with its suggestion of a possible preventive measure against a "scourge of mankind."

ACUTE ANTERIOR poliomyelitis is an infectious virus disease. The infective agent is an extremely small spheroid from 10 to 15 millimicrons in diameter. The virus specifically affects the anterior gray substance of the spinal cord and results in mild, or severe and permanent changes to single or multiple muscles of the motor system. The nonparalytic forms of the disease are four to eight times more common than the paralytic types. What constitutes resistance in one and tragedy in another case depends upon the constitution and body resistance of the individual and the virulence of the infecting medium.

This disease occurs in epidemic cycles, at times of frightening magnitude (Rockford, Illinois: 202 cases in 1945). Peak months are frequently earlier in the south than in other sections of the country. In the northern states, the highest incidence occurs in the months of August, September, and October.

For years it was suspected that the polio virus entered through the alimentary canal and that the digestive tubes were the site of its multiplication and dissemination. Now it is well established that the virus enters the central nervous system by way of its peripheral or visceral nerves. The conduction paths may be sensory, vegetative, or motor. Clinical evidence reveals a high frequency to

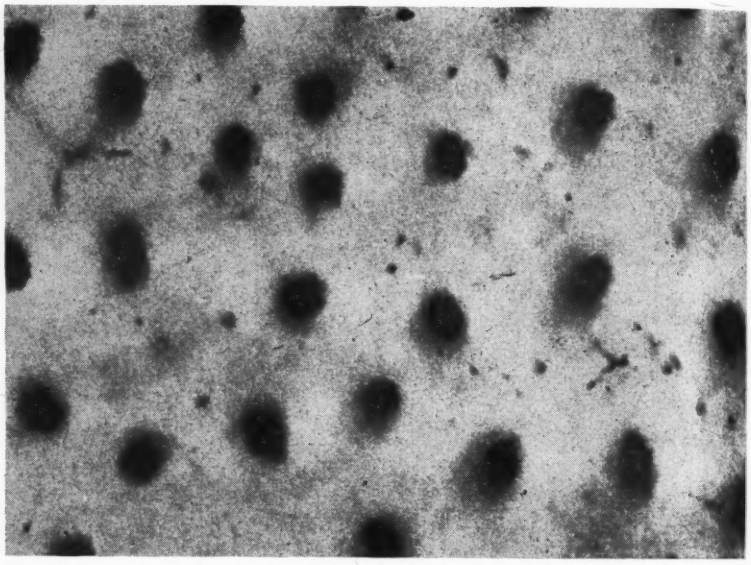


Fig. 1—Cross section through the dentinal tubules near the dento-enamel junction. Diameter of tubules about 1 micron. Magn. 2000.
(Figs. 1-4: From NORMAL HISTOLOGY AND HISTOGENESIS OF THE HUMAN TEETH AND ASSOCIATED PARTS by Meyer, Translated by H. R. Churchill.)

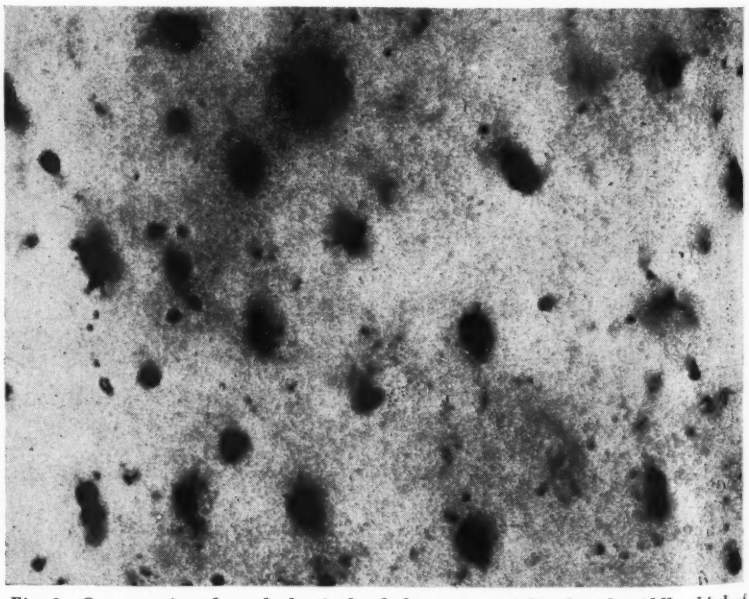


Fig. 2—Cross section through dentinal tubules near peripheral and middle third of the dentine. Diameter of tubules about 2 microns. Magn. 2000.

bulbar infections of the neural axis among people submitting to tonsillectomy or extraction of teeth at the time of poliomyelitis epidemics. This evidence indicates that surgery exposes nerve endings which permit transmission of the virus toward the nuclear cells of the facial, oculomotor, trigeminal, vestibular, and vagal nerves. (The nuclear cell group of the cranial nerves is analogous with the anterior horn cells of the spinal cord.)

In 1946, Faber and Silverberg[1] presented a report on eight autopsied human poliomyelitis cases in reference to the possible pathways to the central nervous system. In seven of these cases, poliomyelitic involvement was found in the trigeminal afferents (V cranial nerve), suggesting that "while its peripheral endings are not superficial, they might be exposed to virus in carious teeth, in pockets formed by gingival separation, or from trauma to the cheeks, gums or palate." They conclude in the summary that the trigeminal nerve is frequently and heavily involved and that the involvement of the gasserian ganglia is outstanding. They also suggest that the pharynx, including both its nasal and oral portions, is the most important portal of entry for poliomyelitic infection.

Research with Monkeys

Poliomyelitis research with experimentally infected monkeys indicates that:

1. The infection may enter the nervous system by way of non-myelinated fibers of the olfactory nerves in the nasal mucosa. Brodie and Eldridge[2] demonstrated that cutting the olfactory nerves prevented further passage of the virus.

2. The infection may enter through "the skin." This suggests that bites of flies and insects may transmit the virus through the fine skin nerve fibers into the spinal cord.

3. The entire alimentary canal[3] can be the primary site of virus infection. Discovery of the virus in the feces of patients and isolation of the virus from bananas contaminated by flies[4] also supports this theory. Studies by Gebhardt and McKay[5] further show that virus-contaminated foodstuffs may be the carrier of the disease.

4. The infection may enter the nervous system through the exposed dental pulp. In 1943, Aisenberg and Grubb[6] demonstrated virus transmission by sealing the virus in the mechanically exposed dental pulps of five monkeys. Typical paralytic poliomyelitis was produced in one animal and the nonparalytic types of the disease were demonstrated histologically in the gasserian ganglia and the spinal cord of the other four animals.

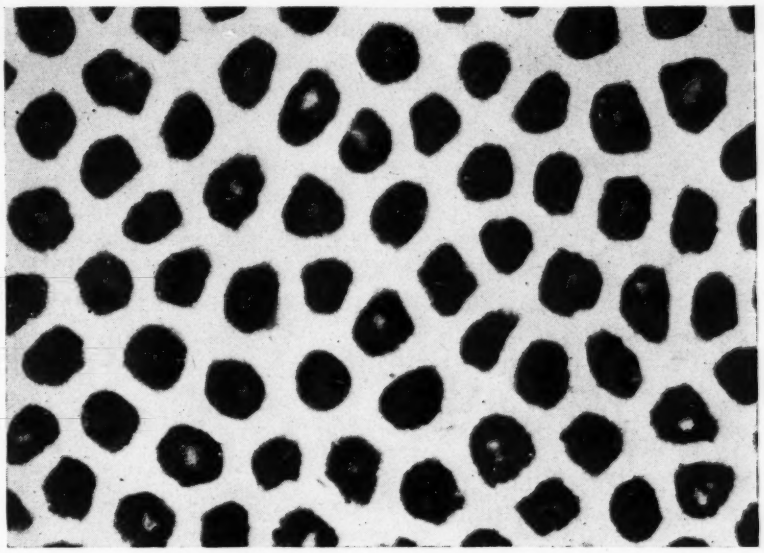


Fig. 3—Cross section through the dentinal tubules near the pulp. Diameter of tubules about 4 microns. Magn. 2000.

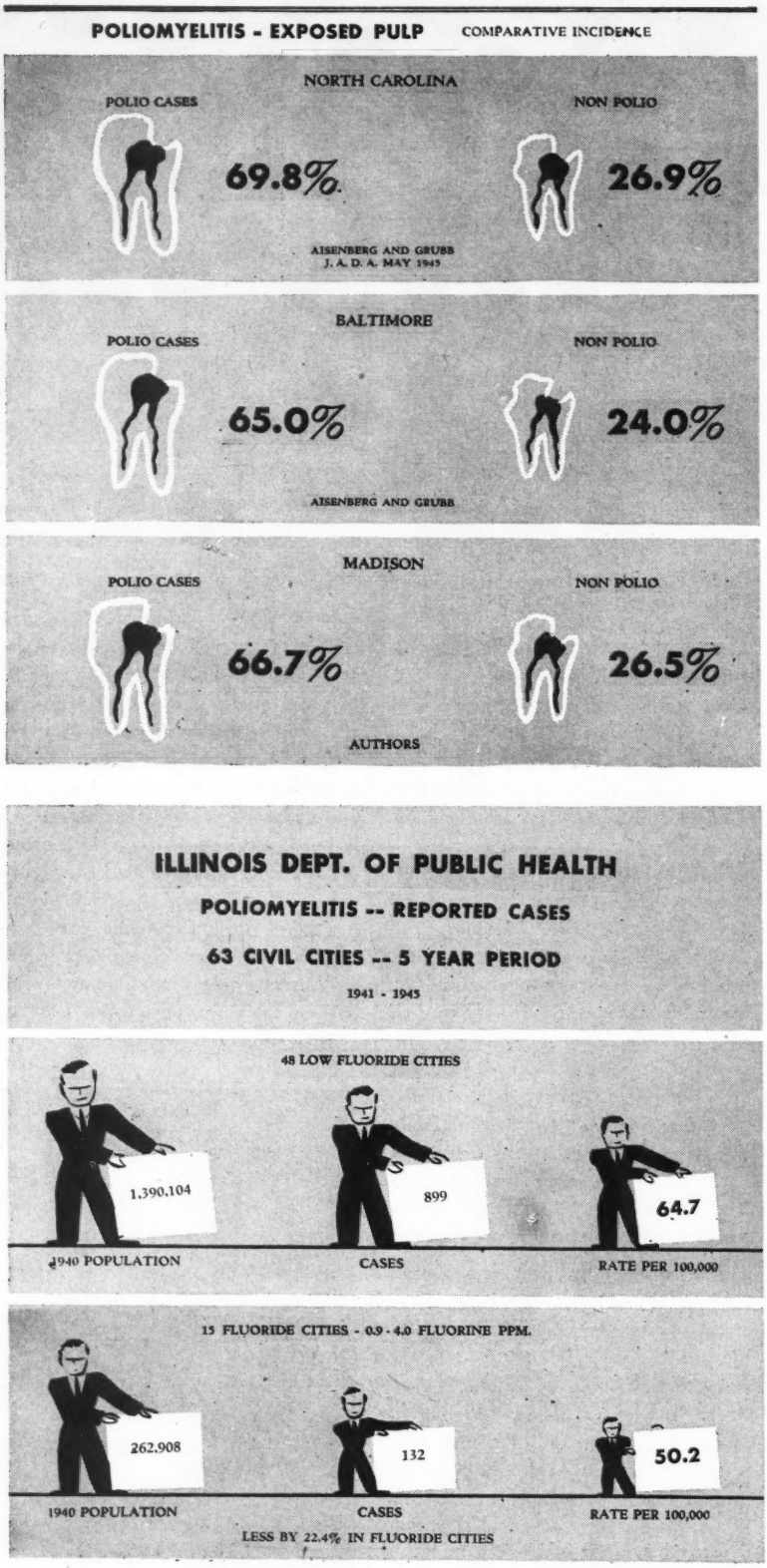
Studies on Pulpal Involvement

The evidence of virus transmission through the exposed pulp in monkeys led Aisenberg and Grubb[6] to studies on polio transmission through the exposed dental pulp of human beings. In 1944, when a severe epidemic of poliomyelitis occurred in a small area of western North Carolina and another epidemic occurred at the same time in Baltimore, they observed the relative incidence of dental pulp exposure among human beings with poliomyelitis and among those who had not contracted the disease.

North Carolina—Of 272 polio cases between 3 and 43 years of age, 190 (69.85 per cent) had carious dental lesions involving the pulp. In a group of 286 non-polio persons in the same area and age group, only 77 (26.92 per cent) presented evidence of dental pulp exposure. The incidence of pulp involvement among persons with poliomyelitis was 2.6 times greater. This difference is significant.

Fig. 4—Dentinal tubules showing fibrils along which virus may be transmitted to pulp. Magn. 3000.

[1]Faber, H. K., and Silverberg, R. J.: Human Poliomyelitis Portals of Entry, J. Exper. Med. **83**:329 (April) 1946.
[2]Brodie, M., and Eldridge, A. R.: The Portal of Entry and Transmission of the Virus of Poliomyelitis, Science **79**:235-236 (March) 1934.
[3]Sabin, A. B., et al: Symposium on Poliomyelitis, J.A.M.A. **117**:267 (July 26) 1941.
[4]Ward, Robert; Melnick, J. L.; and Horstman, D. M.: Poliomyelitis, Science **101**:491-3 (May) 1945.
[5]Gebhardt, L. P., and McKay, W. M.: Epidemic Poliomyelitis, J. Pediat. **28**:1 (January) 1945.
[6]Aisenberg, M. S., and Grubb, T. C.: Exposed Pulps of Teeth as the Portal of Entry for Poliomyelitis Virus, J.A.D.A. **32**:555 (May) 1945.



Baltimore—Of 103 persons with poliomyelitis, 65 (65.04 per cent) had exposed pulps, while only 26 (24.07 per cent) of 108 non-polio persons in the same area and age group showed evidence of pulp exposure. The incidence of pulpal exposure among persons with poliomyelitis here was 2.7 times greater than among persons without poliomyelitis. The supporting evidence in this second epidemic establishes these studies as important scientific data.

Madison—In an effort to determine whether the incidence of pulpal exposure was greater among polio than among non-polio cases in Wisconsin, we examined 36 poliomyelitis patients—ages 4 to 37—at the Orthopedic Hospital of the University of Wisconsin at Madison. Of these 36 patients, 24 (66.7 per cent) showed evidence of carious involvement of from one to seven vital and non-vital pulps. Of 147 persons examined in the same age group who had not contracted poliomyelitis, only 39 (26.5 per cent) showed similar evidence of carious involvement of from one to six pulps. The incidence of pulpal exposure was 2.5 times greater in the poliomyelitis patients. In each of our polio cases we found from one to twelve open carious lesions involving the dentine.

Exposed Dentinal Tubules

It is not necesary that actual pulp exposure be present to permit access of the virus to the vast network of nerve tissue of the dental pulp. Exposed dentinal tubules present a pathway from 60 to 250 times greater than is necessary to permit passage of the virus, the size of which is only .015 microns in diameter. Histologic evidence, as demonstrated in the accompanying photomicrographs, reveals that the lumen of the tubules is about 4 microns at the pulpal wall and tapers to about 1 micron at the dento-enamel junction (Fig.1). Thus the avenue to the pulp becomes larger as decay progresses deeper into the dentine (Figs. 2 and 3). We assume that foodstuffs contaminated with polio virus may be forced by mastication into the tubules and may travel along the fibrils to the pulp (Fig. 4). From here the usual neural mechanism of virus transmission to the central nervous system follows established and accepted patterns.

Caries in Deciduous Teeth

Inasmuch as infants may contract

the disease long before the eruption of teeth, portals of entry other than teeth must exist. The incidence of the disease is very high among children, however, during the period of deciduous dentition when decay is most frequently neglected.

Accessibility to Virus—1. The pulps of deciduous teeth are large in proportion to the total area of hard structure.

2. The protective covering of enamel is only a little more than one-half as thick as that of the permanent teeth.

3. Caries may quickly expose the dentine and permit ready access of the virus to the pulp.

Comparison with Caries in Permanent Teeth—1. The dentine in permanent teeth is protected by a much thicker covering of enamel.

2. Caries in the permanent teeth are generally given better dental attention.

3. Secondary and irregular dentine formation may somewhat shield the pulp from virus invasion because these types of dentine contain few or no tubules.

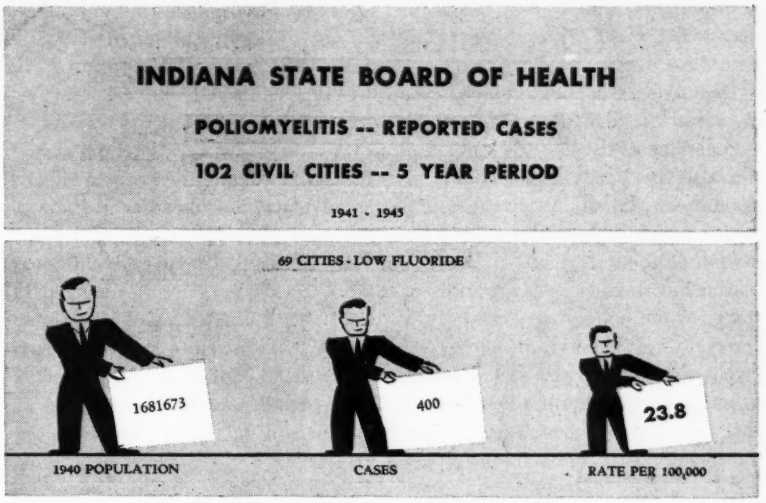
4. In adult life, various irritations may induce the protective action of intratubular calcification or keratinization and thereby occlude the dentinal tubules.

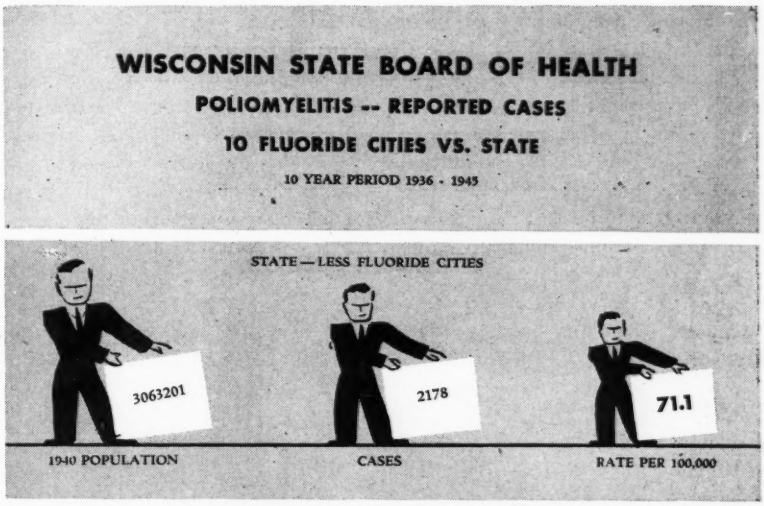
As a result of these differences, carious permanent teeth are possibly not as often portals of entry for infective agents as carious deciduous teeth.

Fluorine in Water and Poliomyelitis

Our theory that tooth pulps and exposed dentinal tubules are important portals of entry in humans can be supported by concrete evidence: The incidence of poliomyelitis is less in populations where pulpal exposure and dental caries are greatly reduced; namely, in a composite of those communities which have drinking water with an adequate fluoride content as compared to a composite of communities with a deficiency of fluoride in the drinking water.

Numerous surveys have demonstrated that a fluoride content as low as 0.5 part per million parts of water always reduces dental decay substantially among native children. It may reduce the incidence as much as 30 per cent. A fluorine content of 1.0 part or more per million parts of water reduces dental decay to a point





approximately 75 per cent below the decay index of fluorine-free communities.

Dental decay is not eliminated even in areas of high fluoride content. Populations of the fluoride communities also are partly made up of migrants who did not receive the protective action of fluorides during the period of tooth formation. For this reason and because other portals of entry for the polio virus exist, a high percentage differential in the poliomyelitis incidence in the fluoride cities as compared to the low fluoride cities would not be necessary to be of significance.

All of the following data were checked and the computations were made by the statistical department of the Wisconsin State Board of Health.

In Illinois—The Illinois Department of Health[7] has supplied a tabulation of reported cases of poliomyelitis in 63 communities for the five-year period, 1941-1945 (Fig. 6). Available data on Illinois water supplies lists only those communities which contain in excess of 0.9 part of fluorine per million parts of water.[8]

High Fluoride Communities: Of the 63 communities, 15 are listed as having a fluoride content of 0.9-4.0. The total 1940 population of these 15 communities was 262,908; they ranged in size from 803 to 47,170. The number of poliomyelitis cases reported for the five-year period was 132. An average of one person in 1,992 contracted the disease during this period.

Low or Non - fluoride Communities: In the remaining 48 communities, there was a total 1940 population of 1,390,104. The number of cases of poliomyelitis reported for the five-year period was 899. An average of one in 1,546 contracted the disease.

The findings in these two groups of Illinois communities showed that the incidence of poliomyelitis was 22.4 per cent less in the high fluoride communities.

In Indiana—The Indiana State Board of Health[9] submitted a TABLE OF DISEASES OF 102 CIVIL CITIES OF INDIANA for the five-year period, 1941-1945 (Fig. 7).

Fluoride Communities: Of these 102 communities, 33 are listed as having a fluoride content of 0.5 to 1.4 parts per million parts of water.[10] The total 1940 population was 207,718; the communities ranged in size from 2,213 to 26,767. The number of poliomyelitis cases reported for these 33 communities for the five-year period was 33. An average of one person in 6,294 contracted the disease.

Non - fluoride Communities: The total population of the remaining 69 communities was 1,681,673. The cases of poliomyelitis reported for the same five-year period, 1941-1945, was 400. An average of one person in 4,204 contracted the disease.

The findings in these two groups of Indiana communities showed that the incidence of poliomyelitis was 33.2 per cent less in the fluoride communities.

In Wisconsin—The Wisconsin State Board of Health[11] reports that there are 10 communities in Wisconsin where the municipal water supply has a fluoride content between 1.0 and 2.5 parts per million. Analyses of water supplies with a fluorine content below 1.0 part per million parts of water are not yet complete.

High Fluoride Communities: The total 1940 population of these 10 communities was 74,368; they ranged in size from 655 to 46,235. The number of poliomyelitis cases reported for the ten-year period, 1936-1945, was 35 (Fig. 8). An average of one person in 2,125 contracted the disease in these fluoride communities over a ten-year period.

Low or Non - fluoride Communities: The total 1940 population of the remainder of the state was 3,063,201. The poliomyelitis cases reported for this population group in the same ten-year period was 2,178. An average of one person in 1,407 contracted the disease.

The findings showed a 33.8 per cent reduction in the incidence of poliomyelitis in the high fluoride communities of Wisconsin.

Summary

The studies of Aisenberg and Grubb demonstrate that the dental pulp can no longer be ignored as a portal of entry for poliomyelitis. Their examinations of 375 persons with polio and 394 persons without the disease, in the same age group and geographic areas (North Carolina and Baltimore), showed that the incidence of pulpal exposure was 40.97 per cent to 42.93 per cent greater in the polio patients. This variation is statistically significant because it is from 3.3 to 5.6 times twice the standard error of difference. Our findings in a relatively small number of cases (Madison) confirmed those of Aisenberg and Grubb.

The data presented in the comparisons of fluoride and non-fluoride communities are predicated upon so many contingencies that the probability of error is great. Large numbers of fluoride communities must be compared with non-fluoride communities in the same general area over long periods of time, inasmuch as all communities are not subject to similar risks of exposure.

As a result of the investigations in this field, we subscribe to the theory that the exposed dentinal tubules, exposed pulps, and root bulbs of teeth are portals of entry for the poliomyelitis virus. The rich nerve supply of the dental pulp offers a most favorable invasion point for the virus, and especially is this true if multiple carious dental lesions feed infections to the exposed nerve rootlets. We therefore make an urgent plea to parents, physicians, and dentists to support all scientific measures for the inhibition of dental caries and to seal off these invasion foci during the early summer months in the hope that the incidence of this scourge of mankind may at least be reduced.

University of Wisconsin Medical School.
110 *E. Main Street.*

[7]Personal communication to authors from Jerome J. Sievers, M.D., Chief, Division of Communicable Diseases, Springfield, Illinois.

[8]Weart, J. G., and Klasse, C. W.: Fluorides in Illinois Water Supplies, J. Am. Water Works Assn. **29**:985 (July) 1937.

[9]Personal communication to authors from J. W. Jackson, M.D., Director, Division of Communicable Disease Control, Indianapolis, Indiana.

[10]Jeup, B. H.: Fluorides in Indiana Water Supplies, Indiana Bd. of Health Bull. **47**:171 (August) 1943.

[11]Personal communication to authors from H. M. Guilford, M.D., Director, Division of Communicable Diseases, Madison, Wisconsin.

Sharpening of Dental Instruments

EMMONS S. COE, D.D.S., Evanston, Illinois

Well sharpened instruments are essential in dental practice. Doctor Coe presents his time-saving, effective methods for sharpening instruments and truing stones.

THE STATEMENT has been quite truthfully made, "You can judge the quality of a dentist by the edge on his pocketknife." Whether this be true or false it is extremely important that a dentist keep his instruments sharp. A sharp instrument will cut faster and with less pain and less pressure.

In this article I wish to give the practical methods of sharpening instruments and truing stones that I use daily in my practice.

Laboratory Knives

Norton Shoemaker's stone (JT-930) has the following advantages (Fig. 1):

1. There is a convenient handle on the end of the stone with an eye for hanging the stone on a nearby hook.
2. Neither water nor oil is used on this stone.
3. One side has a coarse grit, and the other a fine grit.
4. The stone is not expensive.
5. It will put a fine edge on any of the ordinary knives, including the pocketknife.

Surgical Knives

The Arkansas stone, with oil, gives the best edge to surgical knives (Fig. 2). Carter's typewriter oil has proved excellent for this purpose. This oil is scented, will not become rancid, and is splendid for the engine and handpieces.

Instruments for Cavity Preparation, Scalers, and Crown Shears

These instruments are sharpened with a revolving disc in the straight handpiece.

1. The disc is made up of the following parts: Two 7/8-inch, fine carborundum paper discs mounted on both sides of a Joe Dandy disc of the same size (Fig. 3).
2. The instrument is held with the

Fig. 1—Sharpening a laboratory knife: First use the coarse side of the stone, then the fine side for the final honing by a few strokes.

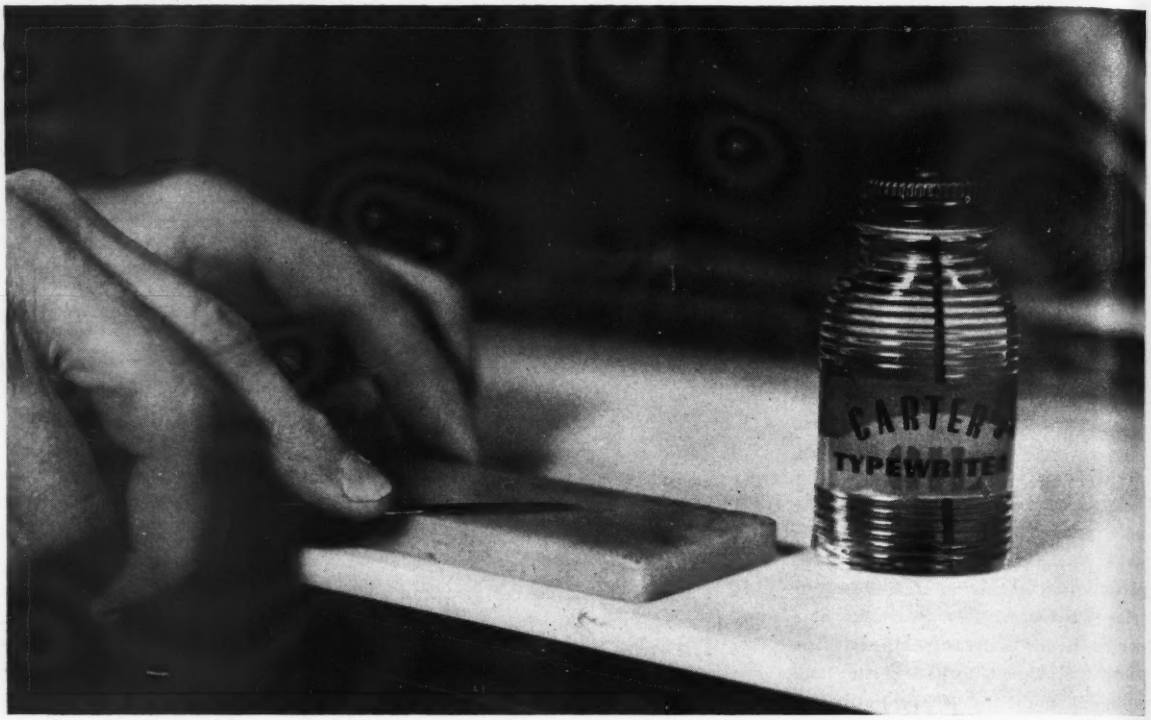


Fig. 2—Arkansas stone used for sharpening surgical knives. Oil is used to keep the stone clean.

bevel against either of the paper discs.

3. Be sure to work under an extremely bright light.

4. A little experience will soon teach one the amount of sharpening necessary.

5. This same instrument is used for sharpening crown shears (Fig. 4).

Dental Needles

Needles may be sharpened in two ways:

1. Draw the needle repeatedly be-

Fig. 3—Disc for sharpening operating instruments. The rotation should be away from the cutting edge.

Fig. 4—Sharpening crown shears: The correct bevel is made easily by observing the polished surface produced by the grinding.

tween the abrasive surfaces of a folded fine sandpaper disc (Fig. 5).

2. This second method is the better one but requires more time:

a) Mount the needle in a small carpenter's clamp, the bevel up, extending ⅛-inch beyond the clamp (Fig. 6).

b) Then, by supporting the point beneath with the thumb of the left hand, grind the needle on the beveled surface with a revolving stone

Fig. 5—Sharpening needle with folded sandpaper disc: Reduces thickness of needle wall if repeated too frequently. Especially useful in removing wire edge caused by striking point of needle against hard object or by overgrinding.

Fig. 6—Sharpening needle with revolving stone mounted in handpiece: A bright light reflected on point of needle will show amount of sharpening required. The hand should rest upon a solid support during the operation.

mounted in the handpiece. For this purpose I use the stone that comes with the Clev-Dent instrument sharpener.

3. If the lumen of the needle becomes clogged it may be opened by inserting a very fine Kerr root canal file through it (Fig. 7).

Truing Mounted Stones

It is common knowledge among dentists that mounted stones do not wear evenly and that a stone that is not true is uncomfortable on the tooth. These stones are easily trued by revolving them against the flat surface of another stone which is revolv-

Fig. 7—Opening lumen of a needle with a fine Kerr file: Procedure, often necessary after sharpening, will not dull needle.

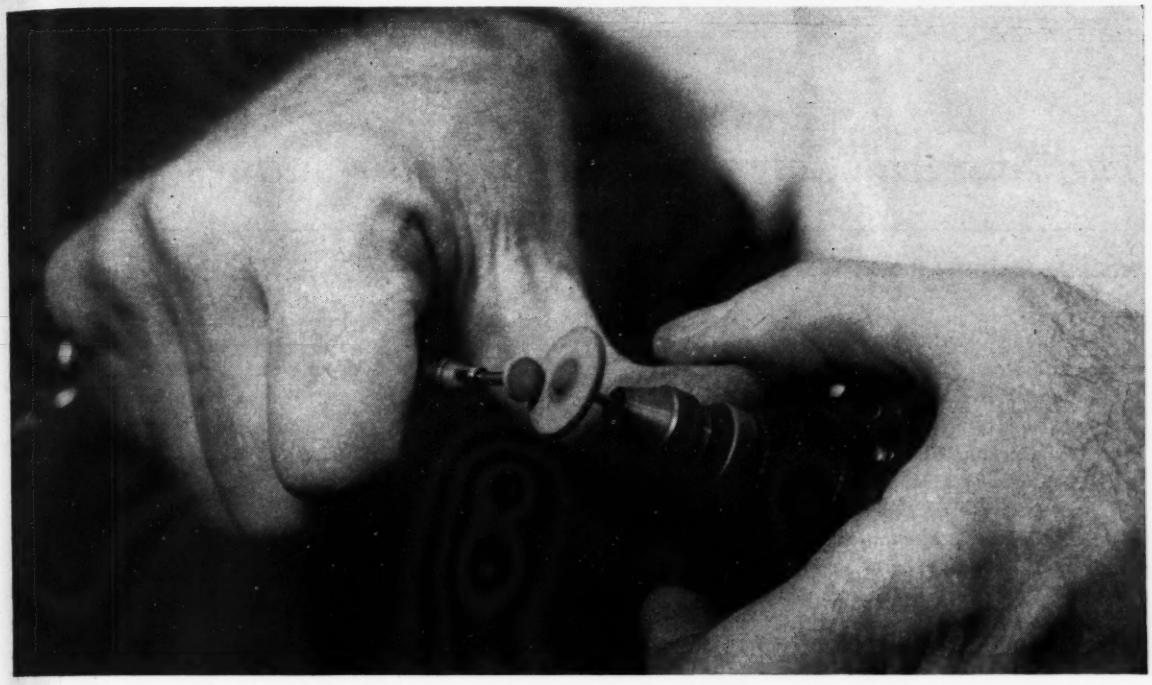


Fig. 8—Truing small mounted stones: Larger stones may be trued the same way on the lathe stone.

ing in the opposite direction (Fig. 8). For this purpose a small inexpensive hand motor is used. The motor is kept hanging at a convenient place on the cabinet near the chair.

Diamond Stones

Cylindrical diamond stones first wear smooth at the periphery of the outer end. This surface can be cut away easily, thereby exposing a sharp part of the stone, by holding the end of the stone against the flat surface of a revolving large, extra-coarse carborundum wheel mounted on the laboratory lathe (Fig. 9).

636 *Church Street.*

Fig. 9—Cutting smooth periphery from outer end of diamond stone. The stone should be revolved in the fingers.

The Surgical Correction of Alveolar Ridges

WILLIAM I. OGUS, D.D.S., Washington, D. C.

Doctor Ogus here describes the use of the electric knife in a surgical procedure for the correction of the destroyed or obliterated alveolar ridge.

He previously discussed in the DIGEST the use of the dessicating current in the electrosurgical treatment of the root canal (April), buccal gingival caries (May), and hyperplastic oral tissues (June).

THE DESTRUCTION of the alveolar ridge in edentulous areas leaves the ridge rough and knife-edged, or the formation of hyperplastic tissues obliterates the alveolar ridge. Destructive and hyperplastic changes of the alveolar ridge are caused by: advancing age with its resorption and atrophic changes, radical surgery, injuries, and denture pressure.

Reasons for Surgical Correction

In most cases, the resorption and atrophic changes are gradual and even. If the changes are rapid, destruction of the labial and buccal ridges occurs and the remaining lingual ridge becomes knife-edged. A rough, knife-edged ridge or hyperplastic tissue make denture placement extremely unsatisfactory. The pressure of a denture on a sharp ridge is intolerable.

Resorption of the osseous structure may lead to tissue encroachment in folds, lowering of the frenum, and enlargement of the tuberosity. This process leads to lowering of the peripheries in the upper and lower arches and destroys the solidity of the ridges which are then unsatisfactory for denture placement.

People have too often been led to believe that waiting five or six months after surgery and preparation of the mouth for denture placement will enable them to receive permanent replacements which will require no further attention. This is not true. Nothing in dentistry is permanent. The patient requires periodic examination of the edentulous areas and study of resorption and tissue encroachment by roentgenographic and clinical means. Correction, when required, by rebasing dentures or surgical removal of tissue folds, prevents future complications.

Classification of Alveolar Osseous Structure

In roentgenographic study of the alveolar ridges, too much stress is laid on the teeth and the root formation; little attention is given to the formation of the osseous structure of the alveolar ridges. The work of F. H. McKevitt[1] on the classification of the osseous structure, dividing it into the hypercalcemic and hypocalcemic (or demineralized) types, carries the most specific definition that has been given of the prognosis of future resorption under denture stress.

Hypercalcemic—1. In the hypercalcemic classification, the cancelli are closely knitted together, and there is an abundance of calcium for regeneration following extraction.

2. Teeth are held firmly in the sockets and are difficult to extract.

3. Resorption and atrophic changes take place evenly and slowly.

Hypocalcemic—1. In the demineralized classification, the cancelli are widely separated and there is a conspicuous lack of calcium.

2. Teeth are mobile, easy to extract.

3. Resorption takes place more rapidly and unevenly.

4. In these cases, cancelli may become detached and buried under the periosteum, causing pain.

Repreparation of Ridges

In the repreparation of the alveolar ridges to establish a more solid denture base (Figs. 1 and 2), it is essential, first, to trim the rough alveolus and to remove all superfluous tissues. After this has been done, the loss of height of the ridges can be compensated for by changing the attachment of the tissue; the tissue is elevated by cutting a groove in the mucobuccal fold. This establishes a more stable base for the denture and a higher periphery.

I have found that the scalpel and the electric knife afford the best operative procedure. Scalpel surgery includes exposing, filing, and trimming the alveolus. In removing tissue and changing the tissue and muscle attachments, the electric knife cuts, coagulates, and sterilizes at the same time, preventing hemorrhage, infection, and regrowth of the tissue.

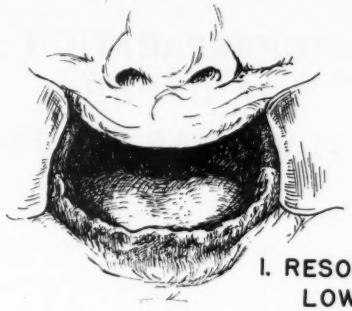
The important steps in this operation are: Cutting the groove in the mucobuccal fold and removing the triangular section of tissue between the incision and the periosteum covering the ridge. These steps can be carried out successfully with an electric knife but cannot be accomplished with a scalpel.

1. The incision usually is made parallel with the lower cortical border of the ridge. It has been necessary at times to extend the incision ½ inch buccally. Surgical judgment based on past experiences is the main guide.

2. The depth of this groove depends on the thickness of the alveolus

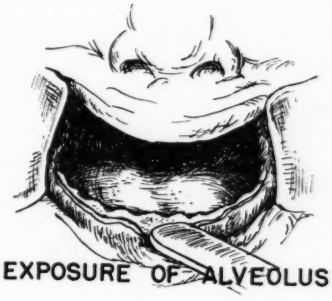
[1]McKevitt, F. H.: Atrophy and Hypertrophy of the Maxillary and Mandibular Alveolar Process and Their Effect on the Stability of Artificial Dentures, J.A.D.A. 19:424-444 (March) 1932.

REPREPARATION OF DILAPIDATED AND RESORBED LOWER RIDGE

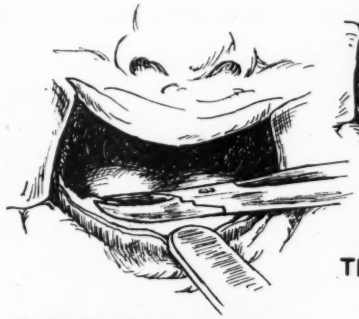


1. RESORBED, ROUGH LOWER RIDGE

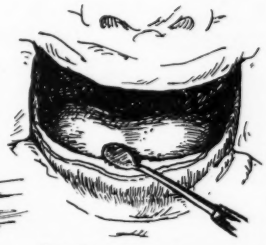
2. INCISION



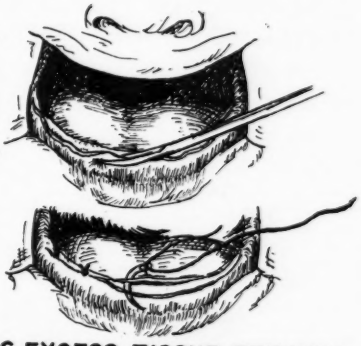
3. EXPOSURE OF ALVEOLUS



4. REMOVAL OF ROUGH ALVEOLUS



5. FILING OF THE ALVEOLUS



6. EXCESS TISSUE REMOVED REMAINING SUTURED

7. CUTTING GROOVE IN MUCO-BUCCAL FOLD

8. REMOVAL OF TRIANGLE-SHAPED TISSUE BETWEEN GROOVE AND PERIOSTEUM

REPREPARATION OF UPPER ALVEOLAR RIDGE

1. SOFT, FLABBY TISSUE

2. REMOVAL OF TISSUE BY ELECTRIC LOOP KNIFE TO PERIOSTEUM

3. ELEVATING TISSUE BY INCISION IN MUCO-BUCCAL FOLD

4. REMOVAL OF TRIANGLE-SHAPED TISSUE FROM GROOVE TO PERIOSTEUM CLOSE TO RIDGE

5. BEVELING OF RIDGE TO ELIMINATE FLAT SHELF FORMATION

in relation to resorption and the thickness of the tissue. In the routine case, the depth is about 2 millimeters.

3. The distal extension from the ridge usually is determined by the thickness of the mandible.

Conclusion

I contend that there is enough osseous structure remaining in both the upper and lower jaws, after resorption and atrophic changes have taken place, to provide a satisfactory base for denture placement.

1832 *Eye Street, N. W.*

The Cover

THE PHOTOGRAPH shows a child patient getting dental treatment in one of the clinic rooms at the Eastman Institute in Stockholm, Sweden. Dental attention is given thousands of children each year on a regularly planned program. Other photographs will appear later. K. W. Gullers of Stockholm was the photographer.

The Editor's Page

No DENTIST WHO is conscious of his responsibility as a public health agent can ignore the article on poliomyelitis by Doctors Reese and Frisch that is published in this issue on pages 368-372.

If the carious tooth is *one* portal of entry for the poliomyelitis virus, we have another opportunity to aid in the conservation of health and human life. A carious tooth is a break in the continuity of the defensive armor of the body. It is the most common lesion that destroys the integrity of the external tissues to expose the internal organs to attack by bacteria and viruses. A carious area is actually an infected area. When the dentinal tubules are exposed, bacteria and viruses can travel into the dental pulp. The pulp is a rich vascular and nerve tissue network that is in intimate proximity to the tissues in the cranial cavity. The more extensive the carious process, the shorter the distance that the invaders must travel from the outside world into the body. The shorter the distance is and the shorter the time interval, the less chance there is for the attenuation of bacteria or viruses.

As Reese and Frisch illustrate from the histologic study of Meyer, the lumen of a dentinal tubule increases in size as the pulp is approached. It would seem, therefore, that the deeper the cavity, the more dangerous it is as a potential portal of entry for bacterial or virus invasion. The possible mechanism of invasion could be this: Food is contaminated by insects that carry the poliomyelitis virus; the food, when introduced into the mouth, is forced into a tooth cavity; under pressure of mastication, the virus is driven into the dentinal tubules; it passes into the pulp and is then conveyed by blood or nerve routes to vital tissues in the cranial cavity.

If the carious tooth is *one* portal of entry for the poliomyelitis virus, it is essential that this portal be closed in American children. Ideally, this one door for invasion would never be opened if, through public health programs, our children were assured sound teeth. Unfortunately, in our present state of knowledge, we cannot suggest a program that will give complete assurance of freedom from caries. Reese and Frisch make a brilliant correlation between the incidence of poliomyelitis in communities where fluorine is present in the communal water supply and the incidence where fluorine is absent. They recognize that the more fluorine there is, the less caries there are and, therefore, theorize—the less poliomyelitis there may be. The addition of the fluoride ion to the public water supply is one public health measure that is helping to control dental disease and may help, therefore, to control the diseases of sequence.

The person who has a carious tooth cannot have effective treatment except from a dentist. The only known method of caries treatment is the mechanical removal of the diseased part and the restoration of that part to form and function. There is no self-healing or repair of a carious tooth. Regardless of the extent of our public health programs for caries control, so long as people develop caries in any degree, they will require the expert operative skill of dentists. The door of potential infection that is already opened by a carious tooth can be closed only by a dentist!

Poliomyelitis is a dread disease that strikes without warning and spreads in its wake death and life-long crippling and distress. At present we do not know the carrying agent for the polio virus nor have we an effective serum or vaccine.

The National Foundation for Infantile Paralysis gives these simple precautions to prevent the disease or to mitigate its severity: Avoid chilling and overtiring; do not swim or bathe in polluted water; avoid tonsil and adenoid operations; wash hands before eating; protect food from flies. In the light of the article by Reese and Frisch, this ought to be added: *Every child should see his dentist to have all cavities closed.*

A Simplified Full Denture Technique

SIDNEY S. JAFFE, D.D.S., Washington, D. C.

A technique is presented for the construction on a plain line articulator of dentures which will function in all excursions of the mandible without adjustment or correction when placed in the mouth.

IT IS WELL known that dentists use many varied prosthetic techniques with good results. The technique offered here is intended to aid the busy practitioner who does not have the time to construct dentures on an adaptable articulator.

Examination of Mouth

In any technique, a careful mouth examination should come before the construction of the dentures and should, of course, include roentgenograms. I should like to emphasize that many men fail in denture construction because they do not take the time to examine the mouth carefully, especially with regard to the need for surgical preparation. Spinous ridges and heavy tuberosities should be corrected surgically; the foundation must be prepared accurately.

Preliminary Impressions

After the mouth is properly prepared for the dentures, take preliminary impressions in modeling compound. Give special care to having a tray large enough to cover all involved areas. Do not use a great deal of pressure. Aim to take the impression with the least tissue displacement possible and with the mouth in as *closed* a position as possible. Never finish an impression with the mouth wide open.

Preparation of Trubase Tray—After the casts have been poured, the technician prepares a trubase tray. A single thickness on the upper is reinforced with air chamber metal by searing modeling compound on top of the trubase tray and adapting the air chamber metal while the compound is still hot. The lower is reinforced with a heavy wire seared all over with compound until there is a substantial thickness. The purpose of this is to keep the trubase from warping.

Trimming—The trays are trimmed on an arbor chuck and made slightly smaller than the muscle-trimmed area. The upper tray should cover the vibrating palate. If the tray has been prepared too short in that area, it is well to sear on a little modeling compound to make it longer. Trim the lower tray externally, paralleling the external oblique line. By lifting the corners of the mouth with the fingers of one hand and supporting the tray gently with the other hand, it can be determined how much of the tray must be trimmed in the bicuspid area. This is done on both sides, which completes the preparaiton of the tray externally.

Trimming should be generous on the lingual; and in the sublingual and submaxillary areas, it should be more than is thought necessary. The tray should extend approximately ¼ inch below the mylohyoid ridge. Have the patient place his tongue against the opposite cheek; this procedure shows how much to trim off the tray in the mylohyoid area. If in doubt, trim a little more. I myself do not have handles on the tray; I get best results by chilling the impression in the mouth, thus preventing the distortion that

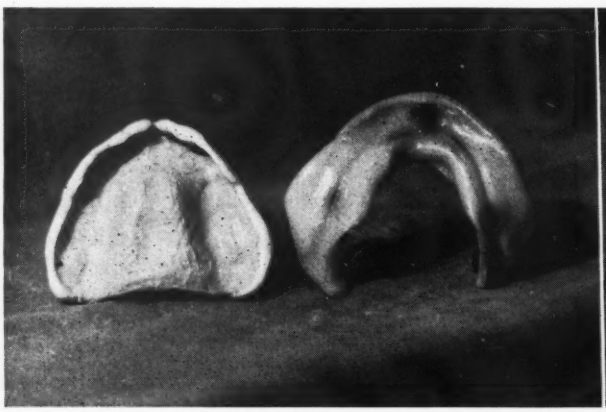


Fig. 1. Completed impressions. Upper is in Opotow, Kerr, or similar paste, the periphery finished in Adaptol; lower is in Muco-Seal or Adaptol.

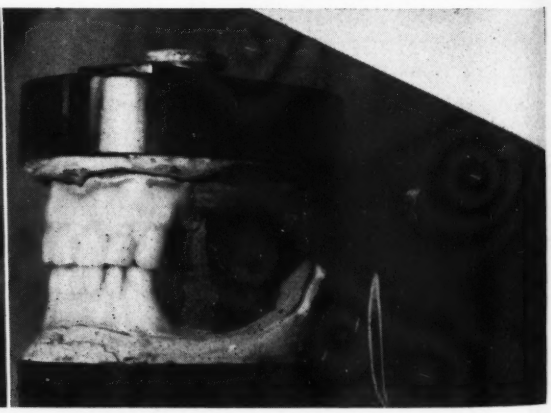


Fig. 2. Anterior teeth on upper and lower trubase after correction of uppers in mouth. Bite is taken with small pieces of modeling compound in molar and bicuspid area. The case is mounted on articulator to complete setup.

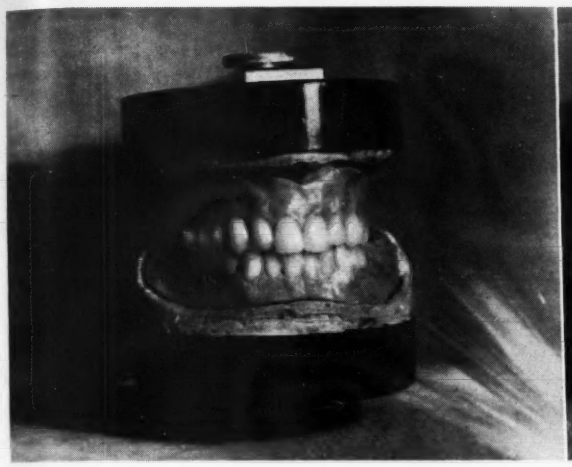


Fig. 3. Completed setup in wax on plain line articulator.

Fig. 4. Try in for esthetics only. Before processing put lower waxed up dentures aside and make modeling composition bite-rim to retain vertical dimension. Process and finish upper.

results when force is used to take it out of the mouth after it is completed.

Final Upper Impression

Trace compound on the border of the upper trubase tray with low-fusing modeling compound sticks and muscle-trim it a section at a time. When the muscle-trimming is completed in this way, a little of the compound is then trimmed off the periphery with a sharp knife so as to compensate for the final muscle-trimming step. At this stage, mix some zinc oxide paste. Place it in a tray and take an impression as for a rebase. Then trace a little Adaptol on the periphery. Place the tray back in the mouth and chill with ice water. The patient should loosen it by distending his cheeks while the ice water is in the mouth. This completes the upper impression (Fig. 1).

Final Lower Impression

Take the lower impression entirely in Adaptol within the previously prepared trubase tray. The mouth is again kept in a closed position. Take the impression out several times and correct it if changes are necessary. At the final stage, dip the impression in water at about 110° F. and place it back in the mouth to complete it. Make certain not to take the impression out of the mouth until it is thoroughly chilled with ice water. Lately I have also been using Muco-Seal for the lower impression with very good results.

Postdamming

You will notice that I have said nothing about the postdam of the upper, which every good impression must have. The reason for this omission is that I do the postdamming out of the mouth, on the model.

Bite Taking

While there is no objection to taking bites with the conventional bite-rims, I cannot help feeling that in many cases these bite-rims are the cause of a great deal of trouble. That is why I do not use them in bite taking.

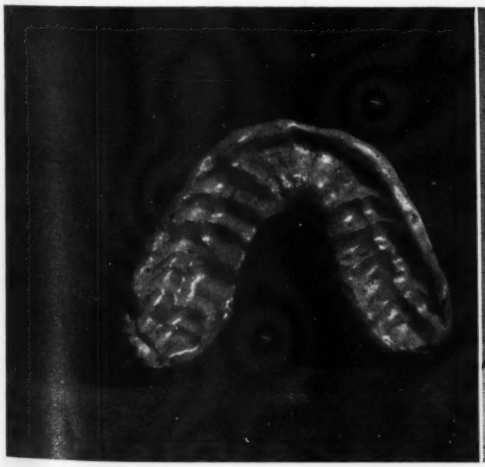


Fig. 5. With blow torch heat lower modeling compound bite-rim to a uniform depth of about 1½ millimeters all around. Place processed upper in mouth and have the patient go through all the movements of mastication.

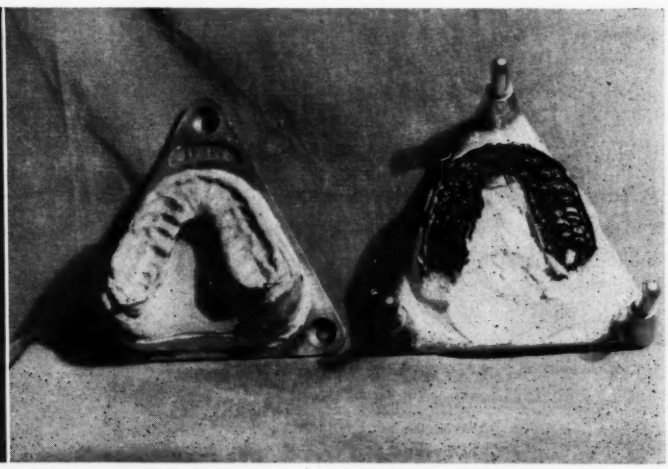


Fig. 6. Place chewed in bite back on lower model. Set both on a Hooper Duplicator instead of on articulator.

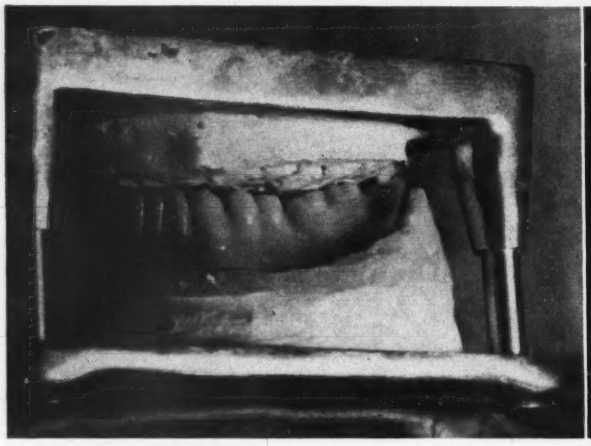


Fig. 7. When separated, place lower waxed up case and correct teeth surface to surface.

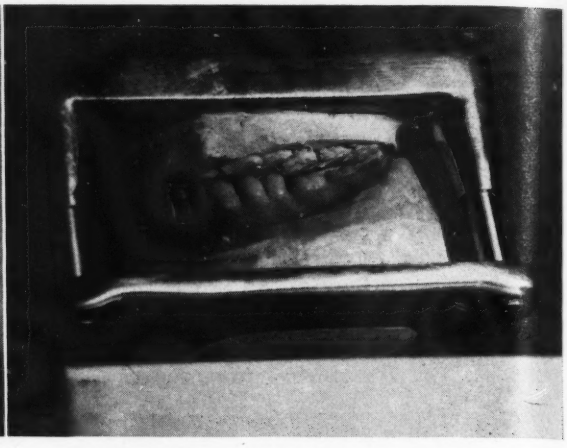


Fig. 8. Teeth should be moved up and down only, not buccolingually or mesiodistally.

Setting Up Anterior Teeth

When the impressions are completed, decide upon the mold and the size of the teeth required. Having this information, the technician sets up the six anterior teeth in wax on the upper and lower baseplates arbitrarily (Fig. 2). Sear two pieces of modeling compound the size of the first molar and second bicuspid areas onto these places in the lower baseplate only. Place the upper baseplate, to which the six anterior teeth are waxed up, in the mouth and make the necessary corrections so that the six anterior teeth will be in fairly proper position. Then place the lower baseplate with the six anterior teeth waxed up and have the patient close the mouth. If the upper anterior teeth go over the lower without interference, the bite can be taken. If they do not, manipulate the lower six anterior teeth until the uppers pass over them.

Preparation of Upper Bite-blocks

At this stage, sear two pieces of modeling compound to the upper first molar and second bicuspid areas and soften them with a blowtorch. After the lower compound blocks are lubricated, direct the patient to close the mouth gently. After chilling, trim the surfaces of the upper bite-blocks. Then place them in the mouth and convince yourself that the vertical dimension is satisfactory. If it is not, make the necessary changes either by adding modeling compound to the upper or by heating the upper and closing it. If still not satisfactory, repeat these steps.

When the vertical dimension is entirely satisfactory, finally index the lower bite-blocks and sear the two together. At this stage, the setup is handed to the technician and completed on a plain line articulator (Fig. 3).

Setting Up Posterior Teeth

You will note my emphasis on placing the six anterior teeth properly. When these are in the proper position with the correct vertical dimension, the technician is certain to set up the posterior teeth in proper position on any plain line articulator, establishing an arbitrary curve of Spee. Try the dentures in the mouth, and if they are not satisfactory esthetically or are out of centric occlusion, make corrections at this time.

Processing Upper Denture

Before processing the upper denture, remove the lower baseplate and setup from the articulator. A new baseplate should be carefully made and also a compound bite-rim to retain the vertical dimension (Fig. 4). The bite-block should extend ⅛ inch

Fig. 9. Before removing lower denture from model, make corrections due to disturbances in processing. The denture should now function perfectly in all positions and excursions without any adjustments or corrections at time of insertion.

buccally, labially, and lingually. After the upper denture has been processed a little of the glaze is removed from the occlusal surface of the upper teeth. The upper is now finished. It is inserted in the mouth and the rest of the procedure is carried out as though the upper denture were the patient's natural dentition.

Preparation of Lower Bite-rim

Heat the lower modeling compound bite-rim slightly to a uniform depth all around of about 1½ millimeters. Place it in the mouth and immediately instruct the patient to go through all the masticating excursions without hesitation while the compound is still warm (Fig. 5). If the patient's mandible does not move with freedom in all excursions, reheat the bite-rim and repeat the same procedure until the chewing excursions are satisfactory.

1. Place the bite-rim back on the model and pour a counterpart. Take care first to cover the excursion imprints as carefully as in painting an inlay, using stone instead of investment.

2. Place the painted counterpart either on a plain line articulator or, better still, on a Hooper duplicator (Fig. 6). The operator should place a weight over the mounting to take care of the expansion of the plaster.

3. Before mounting the lower model, index and vaseline it so that you can replace it after processing to take care of the discrepancies which will surely occur.

When the plaster has set and the bite-rim has been removed, the lower model is on one side (or surface) and the composite function bite is on the other. The lower teeth which were previously set up in wax are now placed on the lower model. The teeth have already been set to centric occlusion, and they are corrected to fit the upper bite without changing the mesiodistal or buccolingual positions. Move the teeth up and down in wax to make them fit as well as possible and complete by grinding the lower cusps slightly. It is surprising how little grinding is necessary and how easily the teeth fall into their respective places (Figs. 7 and 8).

Correction of Discrepancies

At this time the dentures should be placed in the mouth and any esthetic discrepancies corrected on the same duplicator or articulator. When the esthetic features of the dentures are satisfactory, process the lower. Take it out of the flask without destroying the case; then place it back on the indexed duplicator and make spot corrections of the discrepancies caused by the processing. A good way to locate discrepancies is to paint the entire composite bite with Prussian Blue. When the discrepancies have been removed by spot grinding and the denture has been polished, it should fit in every excursion of the mandible without correction of any kind.

Final Steps

After bluing the composite bites, grind them so perfectly that no light will shine through. It is even advisable to place the electric mouth mirror inside the duplicator to make sure that the lingual surfaces are ground as perfectly as the buccal and labial surfaces. Then place the completed lower denture in the mouth. Few adjustments will be required.

1314 *Eighteenth Street.*

Eruption of Deciduous Teeth

HOWARD V. MEREDITH, Iowa City, Iowa

INVESTIGATIONS on the eruption of deciduous teeth in North American children have yielded the following generalizations:

1. Rarely do infants erupt teeth before the end of their fourth postnatal month. The frequency of tooth eruption prior to 4 months of age is estimated to be less than 1 per cent.

2. The mean age for eruption of the first tooth is 7½ months. This is the exact composite mean derived by pooling the data on 1,095 infants from five investigations.

3. A few infants do not begin to erupt teeth until early in the second postnatal year. It appears that approximately 1 per cent of white infants erupt their first tooth after 1 year of age.

4. At 6 months of age, approximately 1 infant in 3 has at least one erupted tooth.

5. At age 9 months, the average infant has 3 erupted teeth. Three is the median for 263 "middle class" white infants given pediatric supervision and the mean for 670 white infants of varying socio-economic status and health care.

6. In infants 1 year of age, the number of erupted teeth is rarely less than 2 or more than 10.

7. At 18 months of age, the median number of erupted teeth is 12; at 2 years of age, 16.

8. At 2½ years of age, 30 per cent of white children have 12 to 19 erupted teeth and 70 per cent the full deciduous complement.

9. There are wide individual differences in the timing of eruption of deciduous teeth: Some children erupt a given tooth early, others late; some erupt the full deciduous complement in a short period, others spread their eruptions over an extended time interval. From the standpoint of teeth present in the mouth at different ages, variation is greatest during the first half of the second year.

10. The usual order of eruption for the deciduous teeth is incisors, first molars, canines, second molars. In greater detail, the characteristic eruption sequence has been established thus: Lower first incisors, upper first incisors, upper second incisors, lower second incisors, first molars (upper and lower), canines (upper and lower), lower second molars, upper second molars.

11. *Sex*: At all ages from 9 months to 2 years teeth tend to erupt earlier in males than in females. *Race*: While materials on Negro subjects are limited, it appears there is "no striking difference" in average age of tooth

(*Continued on page* 404)

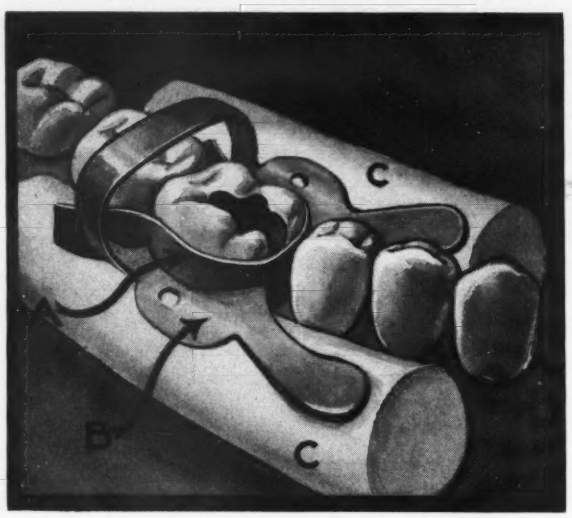


Fig. 1

An Amalgam Matrix Retainer

Arthur D'Elia, D.D.S., Freehold, New Jersey

Fig. 1—On some occasions a regular matrix band is difficult to adjust and to keep in position without dislodgment. In such cases an Ivory rubber dam clamp is used to hold the band in position. The copper band is cut to size and contour (A), and is held in position on the tooth by the molar clamp (B). The clamp also serves to retain the cotton rolls (C) in position.

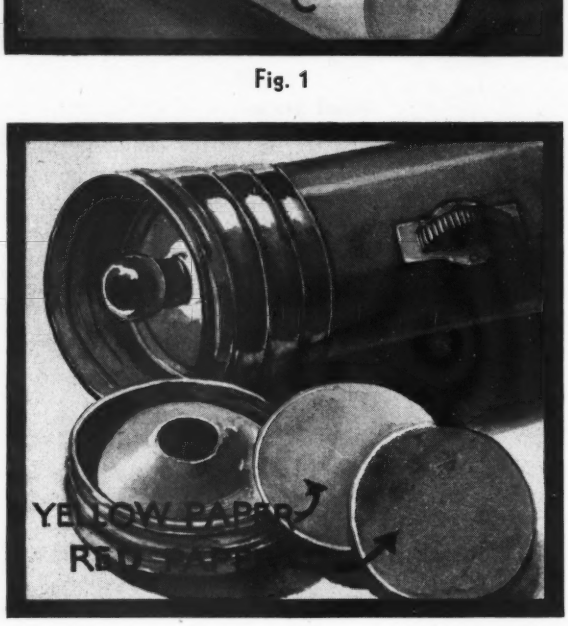


Fig. 2

A Useful Light for the Dark Room

Edward J. Berens, D.D.S., Hammond, Indiana

Fig. 2—The lens is removed from an ordinary flashlight. Pieces of yellow and ruby paper are cut to size and fitted inside the glass lens. After proper fitting of the paper, the lens is screwed back in the flashlight. The safe light thus formed may be used in the dark room to locate a film that has dropped on the floor or it may be used routinely for mounting the films on the hanger.

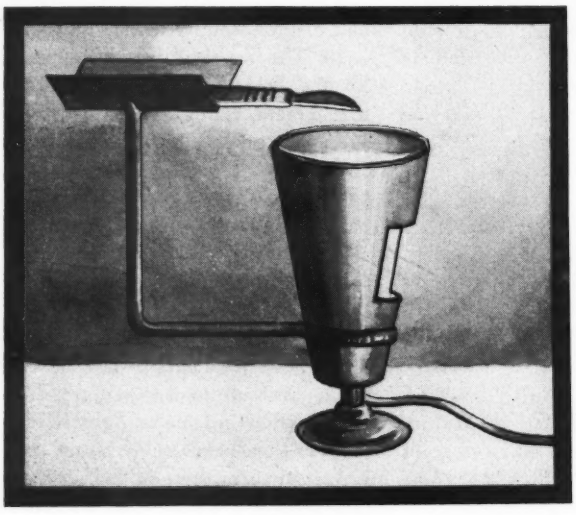


Fig. 3

Heating Waxing Knives

Julius Gummers, D.M.D., Glasgow, Scotland

Fig. 3—A simple extension is attached to the Bunsen burner in the laboratory or the burner used on the instrument bracket. This attachment serves as a holder for waxing knives or other instruments to keep them hot. By alternating instruments, it is possible to have warm instruments constantly ready for use.

Readers are Urged to Collect $10.00

For every practical clinical or laboratory suggestion that is usable, THE DENTAL DIGEST will pay $10.00 on publication.

You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

...GGESTIONS . . . .

Cooling Hydrocolloid Impressions

Pedro G. del Valle, D.D.S., San Juan, Puerto Rico

Fig. 4—Where tap water is not cold enough for the purpose of cooling hydrocolloid impressions, a large glass bottle of ice water may be set on the bracket. A properly bent metal tube extends into the bottle (A) and is connected with the water-cooled tray (B) by a rubber tube. Another rubber tube leads from the tray and is connected with the saliva ejector (C). After the impression is inserted in the mouth, the saliva ejector is turned on and ice water is drawn from the bottle through the tray, thus cooling the hydrocolloid. It is recommended that ice water circulate through the tray for three minutes.

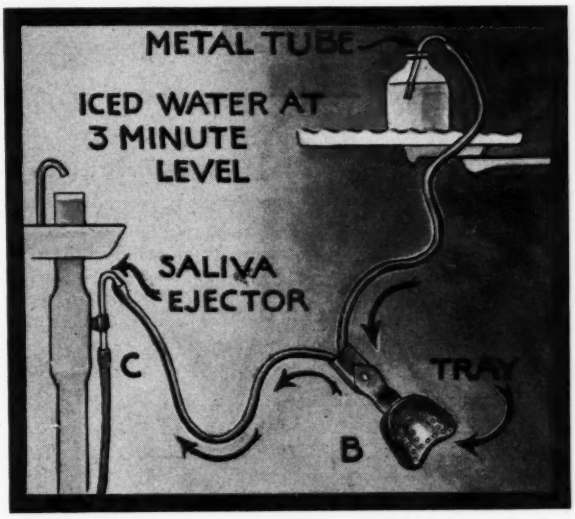


Fig. 4

An Instrument for Trimming Stone Models

Robert S. Hall, D.D.S., Lincoln, Nebraska

Fig. 5—A large, round vulcanite scraper (A) is ground to a triangular shape. Each side of the triangle is then beveled (B). This instrument is efficient in trimming stone models. It may be used either as a "push" or a "pull" instrument.

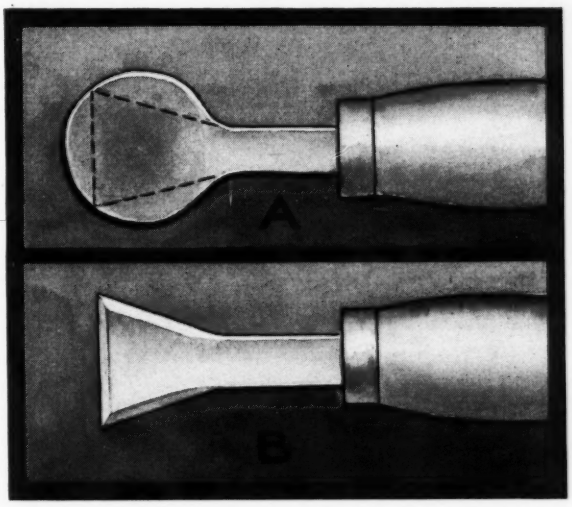


Fig. 5

A Gummed Appointment Sticker

I. L. Cook, D.D.S., Gillett, Wisconsin

Fig. 6—Many patients have difficulty in keeping their appointment cards and as a result forget about a dental appointment or appear at the wrong time or on the wrong day. By using a colored, gummed sticker it is possible for the patient to paste his appointment reminder on the inside of the medicine cabinet where he keeps his toothbrush. Each time the teeth are brushed, the patient will see the card. Some patients prefer to paste the sticker on a calendar over the date of the appointment. This method prevents many broken appointments.

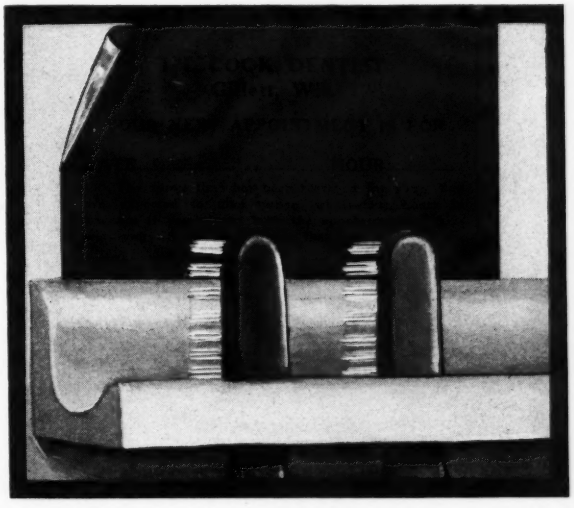


Fig. 6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 388 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, THE DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

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708 Church Street
Evanston, Illinois

From: _____

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Subject: _____

Explanation of Procedure:

Sketch:

$10 will be paid to author on publication of accepted suggestions.

Contra-Angles

Sugar . . .

The semanticists tell us that words are only symbols of reality. The word sugar, for instance, means different things to different people. It is the white crystalline sweet that children and many grown people cry for. It is a pleasurable stimulus to the taste buds and it supplies energy. It is a term for money used by the racketeers. It is a word of endearment to many people who are not too precise in their word selection. Sugar is the bane of dentists who are reasonably sure that if consumption is reduced, dental decay will be reduced proportionately.

Now I see that sugar has become a worry to kids in their reading lessons in school and to a Mr. Daniel Crowell Cabot. The children's publication, MY WEEKLY READER, carried a story, "We Must Be Happy With The Sugar We Have." Mr. Cabot was infuriated because our children were, as he said, being misled. He is all for growing more sugar beets and turning some of our bureaucrats out of their soft jobs to work in the beet fields.

This tempest in a sugar grain is not unusual in a democracy where everybody has his chance to speak his piece and grind his own little ax. I doubt if the teacher who wrote the article for MY WEEKLY READER had any dark plan to fool school children. I doubt if the writer was subsidized by the non-sugar interests, whoever they may be. I know nothing about Mr. Cabot except that he sent me a copy of his letter that appears to be a special plea for more sugar production.

I am chagrined to admit that I can't be fair to Mr. Cabot's point of view because it is contrary to my own which is strictly anti-sugar. Although

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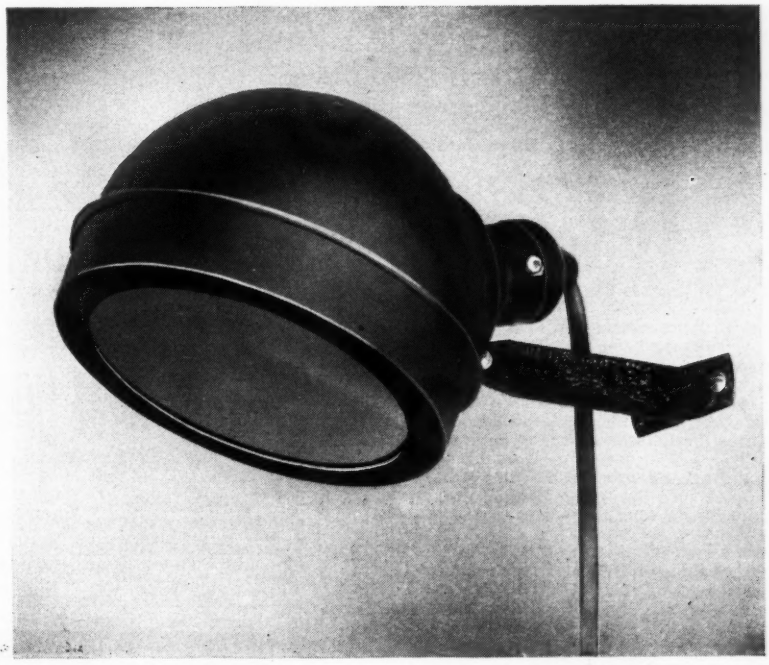

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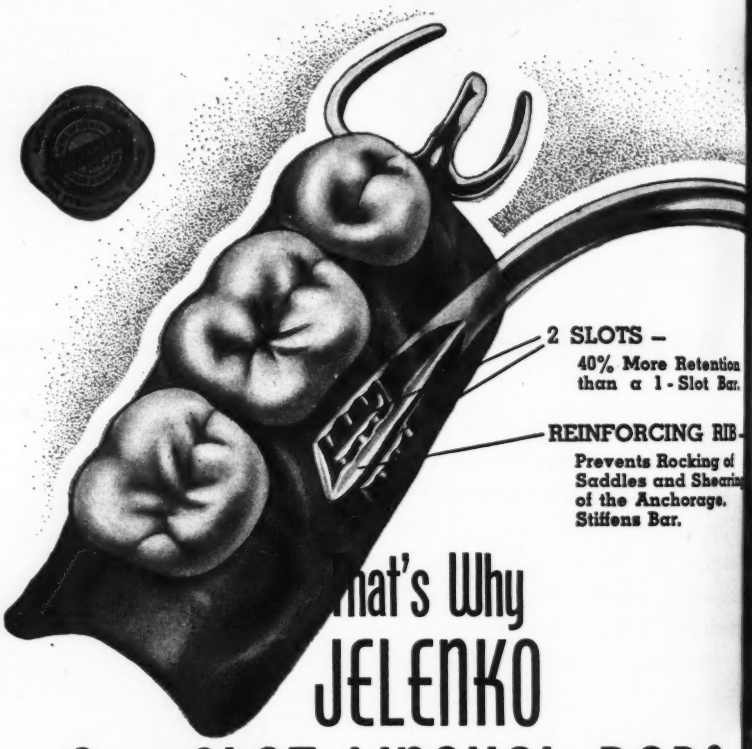
EASOR

I would like to see chewing gum, candy bars, and carbonated drinks taken off the market, I have no intention of leading such a futile crusade. I abhor censorship and repression in any form. I would prefer that American business interests would, on a voluntary basis, withdraw all harmful things from the market; but that is being naive. We are too much in the presence of quacks and promoters who are ready to pounce upon us at the drop of a nostrum. The Food and Drug Act suggests that voluntary controls are not effective. The big stick of the government has to be held over the head of many producers; otherwise the market and our organisms would be flooded with harmful things.

The only reason for writing at all on this subject of sugar is to make the point that behind the scenes in all human enterprises, somebody has a vested interest and an ax to grind. There is no such thing as being strict-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ly impersonal. The most detached scientist has likes and dislikes, particular theories about and pet remedies for the cold in his head or the diseases of civilization. We make a mistake when we expect too much from any human personality. The same one who rises to the heights of heroism and unselfishness may, in the next instance, be mean and petty and damned annoying. Even some of the august justices of the United States Supreme Court are having their petty squabbles and virulent hostilities! These seem to be as common among them as among lesser men.

It will do no good to suspect everybody and to lose faith in humankind just because we know that somebody has streaks of meanness and a little larceny in his heart. Nor will it help to suspect that all businessmen are plunderers or, for that matter, to distrust all dentists because of the quacks among us. Without being cynical, though, it is all right for us to examine everybody's speech and his actions and his writings to determine his "angle." It is fun, trying to discover the axes that are being ground. Some people state their "angles" in a direct, straightforward way; others are more subtle. The subtle ones are the propagandists. They have a clever way of disguising their real purposes.

The chewing gum, candy bar, and soft drink people may, in perfectly good faith, accuse me of being a propagandist against the free enterprise system and of being a wildman who is trying to destroy their businesses. They may even call me names, "Communist!," for example. But we dentists have nothing whatsoever to gain by seeing a shrinkage in our "market" resulting from reduction in tooth decay. Strictly from an economic point of view, we are nuts to carry on the fight for a smaller market for our services. Well, then, why do we? Are we so much more altruistic than other men? Are we better men? No, I don't think so. We actually get satisfaction from the acclaim

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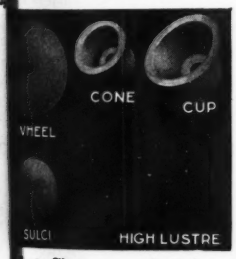

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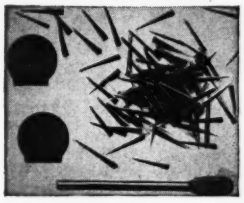

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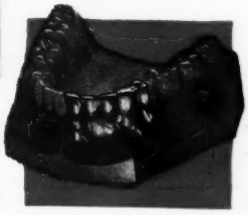

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that we receive from our battle against disease.

Few of us do any of the actual fighting ourselves. We have a vicarious enjoyment in thinking of ourselves as the white knights fighting against disease and death. We identify ourselves with these fighters. The public, in turn, accepts the identification. They believe it; we believe it. Everybody is happy. People trust us because they make this satisfactory identification and trusting leads them to us as patients who accept without too much question our diagnoses and treatment plans, our fees. This kind of good will therefore makes it easier for us to make a living than if we had to fight stiff competitive battles against resistant buyers. No one would dare say that we purposely built up this altruistic image of ourselves. Some men do actually dedicate their lives to the eradication of disease and misery because they find such activity a satisfying way of life. The saints and the martyrs are fellow travelers in this company. Other men seem to enjoy a way of life built on destruction, on strife, on business or professional shenanigans. Which classification anybody drops into is a matter of chance.

I like to look for motives. If the motive behind an act seems to be good, I am inclined to tolerance regardless of the bungling or misfiring in the execution of the act. If the writer who did the sugar article for MY WEEKLY READER wanted to encourage kids to accept their lot—"We Must Be Happy With The Sugar We Have"— or if he did it to improve their health, we could classify his motives as good. If Mr. Cabot was prompted by pure motives in pleading for more sugar, we must respect his right to make the plea even if we disagree with him.

Thumbs Down . . .

There is a lot of misinformation being spread around about thumb-sucking. Some mothers feel that if little Willie slips his infant thumb into his mouth once or twice a day, he is foredoomed to an ugly face or protruding teeth. All sorts of gadgets and devices and ugly tasting concoc-

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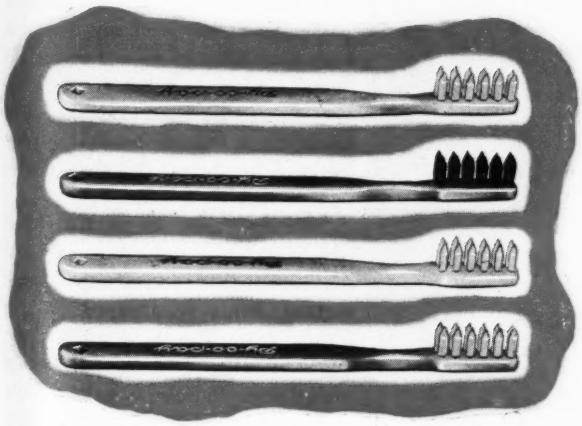
Tufts per Row	6	6
Trim	equal length	equal length
Tuft Length	½ inch	7/16 inch
Over all Length	6½ inch	6½ inch
Handle Length	5 inch	5¼ inch
Handle Shape	Straight	Straight



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1. McCauley, H. B., Journal A. D. A., 33:283, March 1946.

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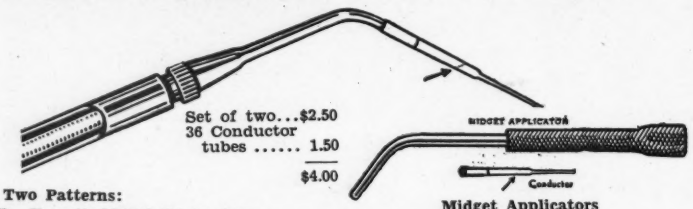

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tions have been thrust on the market to discourage thumb-sucking. Some of the restraining devices are on a par with the torturing implements of the Dark Ages. No one in the country is better able to speak about thumb-sucking and its dangers, real and imaginary, than Doctor Samuel J. Lewis of Detroit. Following the publication of an article by a child psychiatrist in the *Woman's Home Companion*, Doctor Lewis wrote an article at the request of the editor of the *American Journal of Orthodontics and Oral Surgery*. Here is what somebody who has spent his life studying this problem has to say about thumb-sucking:

"Thumb-sucking is a normal behavior pattern in babies brought up under *modern civilized conditions.* The habit is almost nonexistent in primitive children who are fed when hungry and not allowed to cry and who are moreover often allowed to suckle until they are 3 years old. Lack of sufficient sucking movements seems to be the most satisfactory explanation of the habit in the great majority of cases. Four-hour feeders suck their thumbs more often than three-hour feeders, and those on no particular schedule suck their thumbs less than the three-hour feeders. Many pediatricians of my acquaintance have adopted what they call the 'hunger schedule,' that is, they advise the mother to feed the child whenever it evinces hunger by crying, and they report that these babies seldom suck their thumbs.

"We find that, in most children who grow and develop normally and adjust themselves socially, the thumb-sucking habit is dropped by the fourth year. This was true of the Dionne quintuplets, all of whom sucked their thumbs as babies. Four of them dropped the habit when they were about three years old. Emily continued, and the dentist recommended a deterrent appliance. However, the psychiatrist reasoned that since the others had broken themselves of the habit Emily should be given another six months or so of grace, and within this period she too dropped the habit without the assistance of deterrent treatment.

(*Continued on page* 400)

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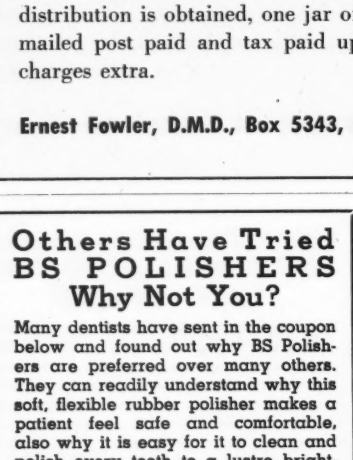

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"If the habit persists after the sixth year it is no longer to be regarded as accessory to the taking of nourishment but rather as the retention of an infantile pattern. It then becomes a problem, not only for the orthodontist but for the psychiatrist as well.

"In my own practice I do not pay much attention to thumb-sucking in babies except to look into their feeding habits and consult with the pediatrician when necessary. The cause of most malocclusion lies much deeper than a local habit, and in my opinion orthodontists lay too much stress on this normal behavior pattern. I never advise mechanical appliances to check the habit, for they do not get at the cause. Moreover, it has been my experience and that of others as well that the child who is prevented from sucking his thumb often takes to masturbation and other undesirable habits. Thus the substitution may lead to consequences far worse than the habit itself."

We should all be happy that newspapers and magazines of wide circulation have enough interest to publish material on dental subjects. A great deal of the material is well conceived, well written, and factually straight. Professional organizations should do everything within their power to help writers who are preparing material. The Bureau of Public Relations of the American Dental Association and the Dental Information Bureau of New York are two agencies that are extremely helpful to people who are preparing articles on dental subjects for general circulation. Neither of these agencies attempts any censorship or slanting of the articles. The article on thumb-sucking in the *Woman's Home Companion* enjoyed a circulation in the millions category. The article by Doctor Lewis, in a technical magazine, was read only by a few thousand dentists. We have to make up for the differential by telling our patients more about dentistry at the dental chair. It would also be helpful if we had more pamphlets and authoritative booklets that we could distribute to patients. There is a wide field for good educational material of this kind.—E. J. R.

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In your ORAL HYGIENE this month

The Present-Day Fee Problem

"Every time someone mentions fees, his colleagues feel uncomfortable and we are all in a great hurry to move on to another question," says Doctor David Tabak in his article on page 1190 of the July issue of Oral Hygiene. With great candor, the author discusses his own past mistakes in determining fees and gives sound, practical advice to other dentists who have the same problem.

★ ★ ★

On page 1208, you will find the Basic Fee Schedule of the Veterans Administration, giving charges for 25 different classifications of dental treatment. You will perhaps want to cut out and save this table for reference.

★ ★ ★

"The Occupational Hazards in Dental Practice" . . . The practice of dentistry imposes certain physical strains on the operator. Oral Hygiene's recent poll to determine the nature and severity of these strains has been of great interest to the members of the dental profession. Over 2,400 practitioners answered the questions, and the tabulated results are analyzed by Florence E. Biller in the July issue of the magazine, page 1194.

★ ★ ★

"The Youngster and You" . . . "How many youngsters recoil from dentists — and vice versa — is not known." Doctor Albert G. Pietsch discusses the reasons for this mutual antipathy and suggests that "The dental practice with no place for the child patient is comparable to a lake without a source of adding to itself." You will find the article on page 1202.

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"Dentists Testify in Washington" . . . According to George B. Fritz, the public hearings on the Wagner-Murray-Dingell Bill have been far from calm. He says, "Spectators who came looking for spirited debate and original invective were not disappointed. . . . The first-day festivities stimulated public interest to such a pitch that guards had to be stationed outside the small committee room to keep out the overflow crowd. Later, the hearings were transferred to the big caucus room, large enough to accommodate the crowds that clamored for admission. "You will want to read this full account (page 1212) of these "spirited debates."

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In addition to these five articles, there are all of the regular departments and many short articles and features. One of these, "Confusion Under the Caduceus," you will find *especially* interesting.

Prolapse of the Mucous Membrane of the Maxillary Sinus: A Case Report

K. P. DURKACZ, M.B., Ch.B.

REAL PROLAPSE of the mucous membrane of the maxillary sinus into the oral cavity is an extremely rare condition. Before diagnosis it is necessary to differentiate between a cyst developing within the sinus and destroying its wall and a mass of granulation tissue.

Examination

A man, aged 42, called with a minor complaint. On inspection, the following were observed:

1. A bulging of the mucous membrane on the palatal side, protruding from under the abutment of a bridge on the right side of the upper jaw.

2. This was of strikingly bright-red color different from that of the surrounding gum.

3. The swelling was the size of a medium cherry.

4. On palpation it felt soft. The finger-tip, pushed inside, would go partly into the maxillary sinus, while the edges of the opening could be easily felt.

History

The patient was fully aware of the condition. He stated that seven years ago he had two teeth extracted from the right maxilla. He had never noticed any discharge at that or at any other time before or after extraction and had never experienced any pain. Soon after the extraction, the bridge was inserted. The bulging became noticeable a few months later; however, as it did not cause him any inconvenience he had not consulted a dentist.

Diagnosis

To exclude the possibility of an infective process in the sinus, the patient was sent to a laryngologist who performed an exploratory puncture of the sinus. No changes were found